

11
AN ESSAY

ON

THE MEANS OF LESSENING PAIN,

AND

FACILITATING CERTAIN CASES

OF DIFFICULT

PARTURITION.

BY WILLIAM P. DEWEES,

LECTURER ON MIDWIFERY, IN PHILADELPHIA.

..... ut si

Cæcus iter monstrare velit.

HOR.

PHILADELPHIA :

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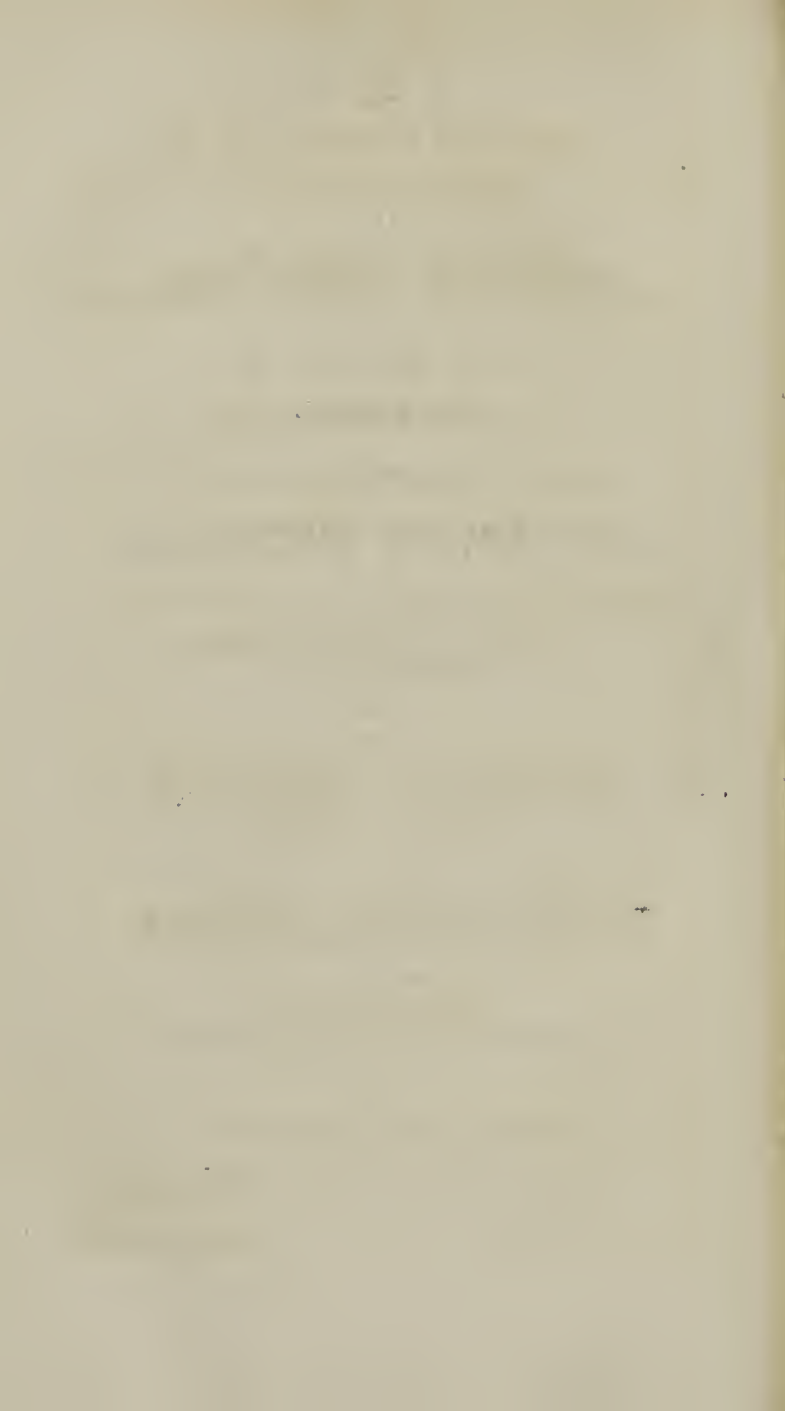
1806.

AN
INAUGURAL DISSERTATION,
FOR
THE DEGREE
OF
DOCTOR OF MEDICINE,

SUBMITTED TO
THE EXAMINATION
OF THE
REV. JOHN ANDREWS, D. D. PROVOST, (Pro Tem.)

THE
TRUSTEES AND MEDICAL PROFESSORS
OF THE
UNIVERSITY OF PENNSYLVANIA,

ON
THE 21st DAY OF APRIL, 1806.



TO
WILLIAM SHIPPEN, M. D.
Professor of Anatomy.

BENJAMIN RUSH, M. D.
Professor of the Institutes & Practice of Physic, &c.

CASPAR WISTAR, M. D.
Adjunct-Professor of Anatomy.

JAMES WOODHOUSE, M. D.
Professor of Chemistry.

BENJAMIN SMITH BARTON, M. D.
Professor of the Materia Medica.

AND

PHILIP SYNG PHYSIC, M. D.
Professor of Surgery,

IN THE

UNIVERSITY OF PENNSYLVANIA,

THIS ESSAY,

IS

RESPECTFULLY INSCRIBED,

By their obliged Friend,

THE AUTHOR.

AN

INAUGURAL DISSERTATION, &c.

HOWEVER easy the act of Child-bearing may be, among savage tribes and certain individuals in various states of society, we find it among others an operation of great pain and frequent danger. It is not intended here to inquire minutely into the causes of this departure from its original simplicity, but merely to glance at some of the most evident; among which we must regard civilization and refinement as the most prominent, if not exclusively the only ones. It is not compatible with my present purpose, to point out in what manner these have operated to effect this change; I shall therefore only state, a change has been produced in the female human system, which subjects it to pain and difficulty in parturition: to shew in what some of these changes consist, and how to ameliorate them, is more especially the object of the present essay.

The causes of difficult and painful labours are various, and may with great propriety be divided into two general heads, namely, those which arise from some imperfection of the Pelvis, and into those which may tend to interrupt the natural and healthy functions of the soft parts ; the latter however only comes within our present notice. The soft parts concerned in labour, are those which are directly, and those that are indirectly employed ;—the former are the uterus, vagina, perinæum ; the latter, the Abdominal Muscles, those of the thorax, diaphragm, &c.

A short anatomical description of the Uterus, with some physiological remarks, is judged necessary, that some of the opinions advanced may be the better understood.

The Uterus is a hollow viscus, in which the great object of conception is performed. From the Phænomena of Labour, and from actual dissection in the gravid state, we do not hesitate to say it is composed chiefly of muscular fibres and blood vessels. Although it be admitted on all hands that it possesses muscular fibres, yet anatomists are not so well agreed as to the manner in which they are distributed. Dr. William Hunter, in his plates of the gravid uterus, delineates them as transverse in the body, but, at the fundus, as describing concentric circles round each

orifice of the Fallopian tubes ; therefore, according to him, there are two orbicular muscles, and a transverse one. Malphigi describes them as forming a net work, while Ruysch contends they appear in concentric planes at the fundus, forming an Orbicular Muscle.

This diversity of description proves, that the distribution of muscular fibres in the uterus has never been satisfactorily traced, and that their accounts have been very much influenced by the individual theory of these great men. Great patience has been exercised, and much labour expended in these researches, by very many excellent Anatomists, besides those just named, yet they have never been able with their knife to clear up this point ; we must therefore have recourse to other means to satisfy ourselves on this head ; the only certain one, it appears to me, is to deduce them from the action of the uterus itself ; this at least warrants two distinct sets, the one circular, the other longitudinal. The circular fibres are those which run in the direction of the transverse diameter of the uterus ; they most probably commence at the fundus, and terminate at the extremity of the os tincæ. They act somewhat like a sphincter muscle, and are, as we shall prove by and by, inferior in strength to the longitudinal fibres, which are those running in the perpendicular direction of the uterus ; that is, in lines more or less direct

from the fundus to the termination of the neck ; they serve to diminish the length of the uterus.*

The uterus is usually divided into fundus, body, and neck. The fundus is made to comprehend all that portion which is above the insertion of the Fallopian tubes ; the body, that portion below the tubes, but superior to the neck ; the neck that part which is pendant from the body, and terminated by the os tincae. This viscus is abundantly supplied with blood vessels, which very frequently anastomose ; so much so, that when injected in the impregnated state, they appear scarcely any thing else. These vessels however are very different in size in different states of the womb ; in the unimpregnated state they are small, though numerous, and are much convoluted ; in the impregnated state they are much enlarged.

The veins are much larger than the arteries ; they very frequently anastomose, are without valves, and terminate in, or expand into sinuses of sufficient size, in some instances, to admit the extremity of the finger. It has been usual to consider the fundus, body, and neck, of the uterus, as a single viscus, whose actions were similar and dependent on

* The uterus may have fibres running in very many more directions than the two just mentioned, but the two noticed, will serve to explain the phenomena of labour sufficiently, without having recourse to them.

each other ; I have my doubts of the propriety of this combination, as it does not accord with many circumstances connected with this organ. Hitherto the physiology of the uterus has been but too carelessly considered ; regard having chiefly been paid to the consequences of its action, rather than the mode in which these actions were performed.

I do not flatter myself I have completely and satisfactorily explained, the various functions of this organ ; but I hope to awaken attention to this subject in others, whose talents and leisure, will better fit them for the investigation. What will be advanced on this head, is offered with diffidence, conscious of the difficulty that attends enquiries of this kind, and the impossibility of reducing speculations, to mathematical demonstration. The office of the body, and fundus, is diametrically opposite to that of the neck, or mouth of the uterus, in time of labour ; while it is the duty of the former to contract, it is that of the latter to relax ; and on the more or less perfect establishment of these different actions, other things being equal, depend the facility, or difficulty of labour. Before we proceed farther, let us inquire into the functions of these parts. From reviewing the various changes which take place in the uterus from the time of impregnation, to the expulsion of the mass it has been maturing, we cannot fail being struck with the various resources it seems

to possess, and the wonderful order it pursues, to give the greatest possible chance of perfection to the ovum ; to secure it against accident ; and finally, to cast it off when it can no longer be useful to it.

The various changes which the womb undergoes in these several processes, have been pretty distinctly marked, and the various phenomena of labour pretty faithfully recorded ; but we have yet to lament, that so little progress has been made in the knowledge of remedies to prevent or overcome the difficulties which but too frequently occur in the different stages of gestation, and parturition : this can only be acquired by a more minute investigation of the laws of nature, and attention to the influence of certain agents acting on the female constitution in general, but more particularly on the uterine system, and especially, on the different parts of the uterus itself. To believe in the influence of certain causes on the different parts of the uterus, may at first sight appear unphilosophical ; and to suppose we shall ever have the different parts of it under subjection, will be considered as Utopean ; but notwithstanding this, I have no hesitation in believing that the time will arrive, when we shall be able to prescribe internal remedies with as much certainty for a preternatural rigidity of the neck of the uterus, and for a too feeble or too powerful contraction of its fundus and body, as we do now for an in-

termittent. For I cannot help regarding the neck of the uterus as a distinct and independent part from the body and fundus ; and as having its own peculiar laws and actions ; and that this separation of powers, is absolutely necessary to the explanation of some of the phenomena exhibited by health and disease, and the influence of certain agents on these parts.

My reasons for thinking so are, first, that we find the fundus and body may be distended to a great extent without affecting the arrangement of the neck ; thus in every uterine pregnancy we see these parts gradually yielding to the influence of the ovum, until about the sixth or seventh month ; while the neck remains very much the same as before impregnation : Secondly, that after the sixth or seventh month the neck undergoes its changes, while the fundus and body become in a great measure stationary, so that two distinct processes, or rather the same process is performed at two different periods, and in different parts, in the order we have just mentioned. Thirdly, that the neck may be affected by disease, while the fundus and body may remain free, and the reverse ; and the neck may contract, or relax, while the other parts are in opposite states ; thus in women who are in the habit of aborting from some peculiarity of the uterus, we find that the body and fundus may be excited into action while the neck

for a long time remains passive ; and also, the neck may relax, and the body and fundus after some time may be excited to contraction. Also in cases of atony of the uterus after a too sudden delivery, the body and fundus may contract while the neck is the only part in fault, and vice versa.

Now were these parts not influenced by different circumstances, these things could not happen : since two distinct actions are going on at one and the same time ; or one of these parts may be labouring under disease without involving the other.

That a woman may carry her child to the full period allotted for its perfection (and that she may afterwards produce it with the least possible trouble) a number of circumstances must concur with the greatest possible regularity. That she may carry it to the full period of gestation, she must be exempt from all and every cause capable of exciting uterine contraction ; or at least that degree of it which would sooner or later, terminate in delivery ; and that delivery may be effected with the greatest facility, the following circumstances must obtain ; first, there must be a subsiding of the abdominal tumour, and if at this time a finger be introduced through the os tincæ, we shall find the membranes alternately tense and relaxed ; these circumstances are owing to the uterus now beginning to contract,

and forcing the presenting part into the pelvis. Secondly there must be a secretion of mucus from the vagina; in some instances this flows from it, several days previous to the onset of pains; but for the most part it only happens a few hours before they are felt. This mucus is secreted from the surface of the vagina, and perhaps from a portion of the neck of the uterus. Why these glands are excited to this duty may perhaps be difficult to explain, but their action appears intimately connected with a certain state, or condition of the os tincæ; thus we find, *cæteris paribus*, this secretion to be most abundant, where there is the greatest disposition in the mouth of the uterus to dilate or relax; and with this, is connected, the same disposition of the perineum. It must be observed, that the secretion here spoken of must not be confounded with *Leucorrhœa*, as this discharge is by no means so favourable to this effect.

Thirdly, The mouth of the uterus must yield easily, that the contractions of the body and fundus may not be exerted for too long a time unavailingly. The dilatation of the mouth of the uterus, when best performed, is either before or very quickly after the painful contractions of the uterus have taken place; this in general is done without the mechanical aid of the contents of the uterus.

Fourthly, The body and fundus must contract with sufficient force, to make the child pass through the pelvis.

Fifthly, The perineum must unfold without much or any mechanical force, that the child may not be detained in passing through the os externum.

Sixthly, There must obtain between the fœtus and pelvis, a proper proportion, and the former must be well situated, that it may derive every advantage from the circumstances just enumerated.

Having thus pointed out what ought to obtain, that labour may be short and easy, we shall proceed to investigate some of these phenomena: and first, that of the

Dilatation of the mouth of the Uterus.

It is a fact very well known to accoucheurs, that sometime before the period of labour, the mouth of the uterus is a little way opened: this does not universally obtain, but yet sufficiently often to warrant the assertion, that it does for the most part. This first degree of dilatation however, is by no means essential to a speedy delivery, since it is generally accompanied with very firm and unyielding edges; this obliges us to enquire, whether this state be the effect of mechanical, or any other power. In order to which, we shall remark, that there are

two states of the os tincæ at this period ; the one, as just mentioned, attended by very resisting edges, and the other with soft and yielding ones ; these are essentially different. In the former case, it must be regarded as the effect of the mechanical stretching of the uterus, the fibres of the neck of which have been sufficiently unfolded to widen this aperture so as to admit the extremity of the finger, or even a larger body ; the uterus appearing as it were, not to have sufficient substance to cover the ovum completely. But this in some other instances, may arise from another cause ; thus, when the uterus is not so fully distended, we may also pass the finger ; but in this case it is owing to the neck and mouth, never being so completely shut after the first child, as in the virgin state ; therefore this case can only happen where the uterus has been subjected to the influence of labour.

In the other case, we have mentioned the mouth of the uterus to be in a very different state ; that is, its edges are pliant, and may by a very gentle force be enlarged. This depends on a very different cause, and must be regarded as a salutary step towards labour.

Baudelocque* appears to look upon both these states as the effect of the same cause ; for he ob-

* Vol. 1. p. 336 Heath's. Trans.

serves that, “ The orifice of the uterus is almost always a little open before the epoch of labour. We see the reason of this, by following, step by step, the order of the developement of that viscus, and by attending to all that passes at its orifice in the latter periods of gestation.”

In this paragraph he alludes to an explanation he has previously given, in which he endeavours to explain the successive developement of the uterus, and eventually the opening of its mouth at the time of labour; we shall therefore transcribe it, that our quotation may be the better understood. He observes, page 132, par. 199 and following, that “ the fibres of the fundus and body of this organ, are more supple, and naturally more disposed to unfold, than those of its neck, furnish almost the whole of the amplification necessary before the sixth month of pregnancy; so that till that time the uterus seems to borrow nothing from its neck. It is at this epoch that the fibres of the latter part begin to develope, and contribute with the former to the dilatation necessary for the convenient lodgment of the fœtus and its appurtenances. From this time all the fibres extend and unfold in the same proportion, and continue to do so for some time: but towards the end of pregnancy, the dilatation of the uterus is made almost entirely at the expence of the fibres of its neck; be-

“ cause those of the fundus make a greater resist-
 “ ance ; and there no longer exists a perfect equi-
 “ librium in the re-action of those two parts, either
 “ on each other, or on the produce of conception.

“ As soon as that equilibrium is destroyed, the fi-
 “ bres of the body, and especially those of the fun-
 “ dus of the uterus, begin to make efforts to expel
 “ the substances which constitute the pregnancy,
 “ and do it in a manner sensible to the touch. If
 “ we then introduce the finger through the orifice of
 “ the uterus, so as to touch the membranes of the
 “ foetus, we find them flaccid one moment, and tense
 “ the next ; which clearly demonstrates this alter-
 “ nate action.”

“ At this time the fibres of the neck of the ute-
 “ rus sustain not only the whole effort of the inter-
 “ nal agents, which they participated before with
 “ those of the fundus, but also the effect of the re-
 “ action of the latter on those same agents ; which
 “ constrains them to unfold so rapidly, that in less
 “ than two months the neck is developed, and en-
 “ tirely effaced.

“ If the cavity of the uterus becomes still larger
 “ after this period, it is all at the expence of these
 “ fibres, now become weaker. At first they dis-
 “ tend and lengthen, then they seem to range them-

“ selves by the side of each other ; which renders
 “ the uterus so thin in this part, that the edges of
 “ its orifice are often no thicker than two or three
 “ folds of common paper.

“ It is by the same mechanism, that the dilata-
 “ tion of the orifice of the uterus begins to be ef-
 “ fected, and labour pains manifested. If the end
 “ of the ninth month of gestation is almost always
 “ the epoch of those pains, it is because the order
 “ of the successive developement of the different
 “ parts of the uterus, as I have stated it, is almost
 “ immutable.

“ The cause of this first degree of dilatation be-
 “ ing well known, must throw the greatest light
 “ upon that which takes place in time of labour ;
 “ and shews us it is not immediately and entirely
 “ the effect of that species of wedge which the sub-
 “ stances subjected to the contractions of the ute-
 “ rus present to its orifice.”*

From this it would appear that the opening of the mouth of the uterus at the commencement of labour, and also that degree of opening which exists long before this period, is the effect of the same cause ; namely, the influence of the body and fundus mechanically acting upon the orifice of the womb. But this cannot be the case for the reason just stat-

* Ibid Vol. 1. p. 336.

ed ; namely, that the degree of opening may be the same, but the resistance of the edges of the mouth is very different ; in the one case the circular fibres of the neck obstinately maintain their contraction ; whereas in the other, they are in a greater or less degree relaxed ; and that this relaxation is not the effect of this uterine effort acting mechanically is evident, since we find it existing where there is no portion of the ovum made to engage in it, consequently cannot act like a wedge. Besides were it owing to this cause, it would appear like a part that was yielding to a mechanical impulse, and would consequently exhibit marks of resistance ; that is, it would still maintain the action of contraction, and not that of relaxation. Indeed Baudelocque himself seems aware of this objection, for he observes page 337, par. 616, “ Although in many cases, “ where the waters drain off prematurely no part “ of the child can engage in the orifice of the “ Uterus, yet it does not fail to open, in the same “ manner as if the bag formed by the protrusion “ of the membranes were entire ; from whence we “ see that the action of that organ is alone sufficient to effect the dilatation of its neck. But it “ will perform it so much the more easily, as the “ uterus is more distended, and as the body it “ contains is more solid.”

Here he appears to abandon, in a great degree, his mechanical doctrine, and confesses the action of the uterus alone to be sufficient to effect the dilatation of its neck; but he does not pretend to determine what that action is; he conjectures in the next paragraph, that the soft and gradual pressure of the distended membranes may have an influence on it; for “Independently” says he “of the force which the membranes distended by the waters exert in the orifice, when they can engage in it like a wedge, the soft and gradual pressure which they continually exert on all the neighbouring parts, determines a repletion in them, which favours their developement and renders it less painful.” But unfortunately for this conjecture, should this determination take place, it would have a diametrically opposite effect; for the more turgid or engorged with blood the neck should become, the less disposed would it be to dilate. Of this we have abundant proof, when this part becomes inflamed.*

Besides, the uterus in many instances dilates as kindly after the evacuation of the waters as before, of this the following history is a proof: Mrs. ——— is always surprized by a discharge of the waters

* It must however, be admitted that during labour, or even before, there is some increase of determination to these parts, as there is an increase of action in their vessels, as we can sometimes determine by the touch.

without any pain ; but this so quickly succeeds, and the child so suddenly expelled, that her nearest neighbour cannot get to her before it happens. This has obtained with all but her first labour.

Were it necessary, we might multiply authorities to a great extent, to disprove this mechanical doctrine ; but shall only give one, Dr. Denman, vol. II. page 37. “ More than one case,” says the Dr. “ has occurred in my own practice, to which particular attention has been paid, for the purpose of registering the observation, in which the labour has commenced properly, and proceeded with much activity till the Os uteri was fully dilated, and then ceased altogether for several days : at the end of that time the membranes breaking, the action of the uterus has returned and the labour been finished speedily, with perfect safety to mother and child.” Here we see the dilatation effected without the wedge-like influence of the membranes or child.

From what has been said, we trust it will appear that, in the most natural and favorable cases of labour, the mechanical power of the Ovum has no influence in dilating the mouth of the uterus. It must however be admitted there are many instances where the contrary obtains ; thus we see cases where the action of the uterus is so rapid and pow-

erful, that the child is forced through the orifice with great violence, and risk of lacerating it ; but in these instances the mouth of the uterus exhibits a very different appearance from that where the dilatation is effected by a different agent. When the head, or presenting part, is made to force its way, the mouth of the uterus transmits it with great reluctance, and evident hazard ; for it pertinaciously resists, as is evident to the touch ; while on the contrary when it has dilated, agreeably to the laws of nature, it yields most willingly. It has most probably been owing to a proper distinction not being made between these cases, that the mechanical account of the dilatation of the mouth of the uterus has so universally prevailed ; but there is scarce a writer on this subject who does not furnish facts to disprove his own doctrine on this head.

The cases just mentioned are to be looked upon as departures from the healthy and ordinary progress of labour ; and are therefore not to be considered as militating against the doctrine we wish to establish. It may be asked, how it comes to pass if the membranes distended with their water are of so little consequence to the opening of the mouth of the uterus, that a painful and tedious labour most frequently follows where they have been prematurely ruptured ? The answer we conceive to be easy. In those cases where the membranes are ruptured

some time before the legitimate pains of labour have commenced, the uterus is oftentimes thrown suddenly into contraction, and this before it is prepared, (if we may so express it) for the regular routine of parturition; consequently the neck is not in a disposition to dilate; not because it fails in assistance from the membranes, but because all the preparative conditions are not complied with; therefore not properly prepared to perform all its duties. But it is by no means an invariable thing for a labour to be tedious after this early escape of the waters; unless indeed we date the commencement of the labour from this event; in this case the labour might, with strict propriety, be said to be tedious; as twenty-four, thirty-six, eight and forty hours, nay in some instances, a much longer period has intervened before the delivery was effected: we may therefore safely, we believe, lay it down as a rule, that a more tedious and painful labour does not ensue from the premature rupture of the membranes, unless the uterus is thereby immediately thrown into contractions; but should no pain succeed for some time, the labour will be, *cæteris paribus*, as in ordinary.

After having endeavoured to shew in what manner the mouth of the uterus is not dilated, it may be considered incumbent to point out in what way in our opinion this effect is produced. This is con-

fessedly a difficulty of some moment, but it must be attempted ; and should we fail in being satisfactory on this head, we shall experience but the fate of all who have gone before us. We trust however, it will appear subject to certain laws, whose ultimate effect we have in our power to imitate ; and this should be regarded as a matter of some consequence. But before we proceed farther with this subject, we must stop to enquire into

The different kinds of contractions of the Uterus.

First, The longitudinal contraction :—this is performed by the fibres of the uterus, so called, or those fibres which run from the fundus to the neck ; it serves to shorten the uterus in the direction of these fibres ; consequently to expose its contents more and more, by making them approximate the mouth ; and this will be in proportion to the diminution of resistance at this part, and the force with which these fibres may act.

The circular contraction:—this action is performed by the fibres so named ; they, as it were, run round the uterus, commencing at the fundus, and terminating in the circle forming the neck : they tend to diminish the capacity of the uterus in the direction of its transverse diameter, consequently have little or no immediate agency in expelling its contents.

The simple contraction :—or when either of these sets of fibres act separately, as before labour more especially, when the finger is introduced through the os tincae, we find the membranes alternately tense and relaxed: in this case we presume the longitudinal fibres act alone, as there is no stiffening of the circle forming the mouth; or as when the waters have been evacuated, the uterus is made to embrace its contents, and no pain for a long time is produced; we suppose in this instance, the circular fibres act alone, as there is no effort to expel the contents of the uterus, which would not be the case did the longitudinal fibres co-operate with them.

Compound contraction :—or when both sets of fibres act; their united action is proved, we conceive, when there is a hardening of the mouth of the uterus, and an evident depression of this viscus with its contents.

Tonic contraction :—by this we understand that uniform action which the uterus exerts to reduce itself to its original size; this appears to be the effect of all the fibres folding themselves up after the distracting cause is removed.

The spasmodic, or that contraction of the uterus which is for the most part accompanied with pain.

It must be remembered however that pain does not necessarily belong to this species of contraction, since some women are delivered without it. We should therefore, agreeably to this fact, rather call this species the alternate contraction of the uterus ; as it has a greater or less interval between each contraction : when this action is best performed it is, we presume, chiefly by the longitudinal fibres.

It may here become a question how are the fibres of the uterus enabled to perform this alternate contraction ? Since we know that a muscle after having contracted, cannot repeat that contraction without being first relaxed and then elongated. Where resides this elongating power in the uterus ? This enquiry, so far as I know, has never been made, but the necessity of determining it will immediately present itself, when the question is asked. To solve it, no doubt, is difficult, perhaps impossible, with our present imperfect knowledge of the anatomy and physiology of this important viscus ; but is it not justifiable, under such circumstances, to hazard a conjecture, however small its approach may be to truth ? If this be the case, and we are allowed to urge a crude opinion, we would say, we must look for this power in the blood vessels and sinuses of the uterus.

The first change the uterus suffers from impregnation, is distension ; the next, that of contraction.

The uterus is then put in a state of elongation by the powers within it, which, when it suffers to a certain degree, contracts ; what is the effect of this contraction ? It approximates its fibres ; it expels a considerable quantity of blood from its sinuses and larger blood vessels, into the general system of the mother ; it diminishes the size of its blood-vessels ; it makes them become more convoluted ; the uterus becomes paler, a proof of a lessened quantity of blood: the face of the woman becomes suffused, nay sometimes livid.

To facilitate the departure of blood from the uterus during its contraction, the veins are not furnished with valves, by which means the blood is allowed to pass freely in the direction of any given impulse. What is the effect of the subsequent relaxation ? The fibres become longer, straighter, and more easily distensible ; the sinuses and large vessels are less compressed, and transmit more blood in a given time ; the face of the woman becomes paler ; the uterus becomes again pretty suddenly charged with blood, as is evidenced by its deeper colour ; its fibres are distracted or elongated by this influx of blood, and hence are enabled to contract.

It may be urged against this opinion, that the uterus contracts for the most part more frequently, and more powerfully, as its substance becomes increased

in density,—as towards the close of labour ; consequently the influx of blood must be much retarded, and of course its impetus or quantity insufficient to elongate the fibres sufficiently to allow of a new contraction. But in answer to this we must observe, that at this period of labour the circulation is very much encreased, and although the absolute quantity in the uterus may be diminished, the velocity is very much augmented ; and added to this, its irritability is much encreased, therefore, less distension will be required. It may also be said, there are instances of the uterus ceasing to act for a considerable time, and where we must suppose the circulation to go on in it. That the uterus in some cases will cease to act, is most true ; but this by no means destroys the supposition we have been making,—as this part, like all others, may have its fibres in a condition in which they will not obey their ordinary stimuli—it may proceed from exhaustion, or from local plethora ; stimuli will cure in the one instance, and blood-letting in the other.

The irregular contraction :—or when a part of any set of fibres act ; as in cases of what is called spurious pains.

Having thus noticed in a general way the various actions of which the uterus is capable, we shall proceed to enquire into—

The Relative strength of the different sets of fibres.

We have already observed that the longitudinal fibres were stronger than the circular ; our reasons for thinking so, are,—first, that were they of equal strength in all parts of the uterus, delivery could not take place, since the circular fibres would embrace the body of the child, and thus retain it ; their action being as we have already said, to diminish the uterus only in its transverse diameter, consequently is at right angles with the longitudinal. Secondly, that when, from any circumstance, the power of the circular fibres is encreased, either absolutely or relatively, there the labour does not advance ; therefore the circular fibres are not to be considered as directly instrumental in expelling the child. Thirdly, as the circular fibres, from the direction of their action, do not immediately contribute to the advancement of the child, they must be considered as the weakest set,—since delivery takes place without their direct aid ; the longitudinal fibres have then not only to move the child, but overcome their resistance.

Now let us apply these facts to the explanation of the dilatation of the uterus and the progress of labour.

When the woman has carried her child to the full time of gestation, that process termed labour

must ensue, that she may be enabled to part with it—for this purpose, one part of the uterus must yield or dilate, while another must contract. The uterus is closed at bottom, and maintained in that situation by the contraction of the muscular fibres of its mouth, but these must relax that the child may effect its escape. We must therefore regard the circular, and longitudinal planes of fibres, as a kind of antagonist muscles to each other. The longitudinal fibres yield more willingly to impulse from within the uterus than the circular, during gestation; owing perhaps chiefly to their greater length, or perhaps greater laxity;* they continue to yield until they are so much upon the stretch as to induce a disposition to contract; this they eventually do. The circular fibres, on the other hand, from their greater rigidity, most probably are put immediately upon the stretch; they therefore have a constant stimulus to excite their contraction; hence the mouth of the uterus keeping closed. But so soon as the longitudinal fibres become uneasy, from distention, they become refractory and will yield no more without resistance; they then contract, and continue to do so until the stimulus of distention becomes still more powerful, which eventually brings on the period of labour. By the contraction of the longitudinal fi-

* Hence perhaps the lengthened form of the uterus.

bres, the length of the uterus diminishes ; this puts the circular upon the stretch, since the uterus cannot diminish in one direction, while the mouth of the uterus remains shut, without augmenting in another, therefore the circular fibres are a little distracted, and they immediately co-operate with the longitudinal, and force the uterus with its contents lower into the pelvis ; in this instance, what we have termed the compound action of the fibres, takes place ; this is proved by the edges of the mouth of the uterus stiffening during the contraction.

This kind of action is reciprocated for some time ; but the circular fibres eventually yield to the influence of the longitudinal ; first, from their having expended a portion of their power in maintaining a state of contraction so long ; and secondly, their being absolutely the weakest fibre ; hence the circular fibres which constitute the neck, relax ; and hence the dilatation of the mouth of the uterus.

It may be asked if the contraction of the longitudinal fibres prove a stimulus to the circular, how does it happen while the membranes remain entire, that they do not continue this contraction until the membranes are ruptured or even longer, since the stimulus of distention must be applied, as often as the longitudinal fibres continue to contract ? To this we would answer, that, when these fibres are acting

properly, the longitudinal are gradually getting the ascendancy of the circular, or in other words, the circular contract less forcibly ; in consequence of which, the mouth of the uterus becomes more dilated, which allows the membranes to be pushed down during the contraction, as the Liquor Amnii will naturally be forced to that part which gives the least resistance to its escape, and of course the uterus will be less distended transversely, and the circular fibres be put less upon the stretch ; or what is the same thing, less stimulated ; then as they are less stimulated, by the uterus having more room for the disposition of its contents, they will contract less forcibly ; and this diminution of force, in contraction, enables the membranes to protrude still farther, which again has its effects in lessening their contraction, by offering still more room for the waters to retire in, during the contraction of the other fibres, and eventually they cease to act.

Secretion of Mucus and yielding of the external parts.

During labour, and even before, in some instances, there is a considerable discharge of mucus from the neck of the uterus, and vagina, which is extremely favorable to the dilatation of the external parts. Previous to labour, and more especially during it, there is a more than ordinary determination

of blood to these parts, which, when not excessive, stimulate the glands here situated, to an increase of action ; hence the abundant flow of mucus. This mucus is sometimes tinged with blood, which arises from the rupture of some of the small vessels of the chorion, or perhaps placenta.

This mucus seems to serve a double purpose ;— first, it lubricates the passage, and by that means allows the child to pass more easily ; and secondly, it facilitates the relaxation of the vagina perineum, by diminishing the quantity of fluids sent to these parts during this period ; and thus acts like topical depletion, which we well know, favours relaxation ; this we are inclined to believe is the chief use of this discharge. Were it merely to lubricate the passage, we could always obtain the same end by artificial means ; but every body knows this does not answer the purpose equally well. This fact is tacitly implied, if not acknowledged, by every writer on the subject of midwifery, when they caution against frequent touching, lest you waste the natural mucus of the part ; why this caution, if it were merely to moisten, since we have a number of substitutes ? No, the fact is, frequent touching stimulates these glands beyond the secreting degree, therefore the parts become dry, for want of it ; and rigid, because the parts have failed in this depletion. This is the

true principle on which we should caution against indiscriminate touching.

Of the Contraction of the Fundus and body of the Uterus.

That the uterus may be enabled to expel its contents, as we have already said, the fundus and body must contract, while the mouth must relax. We have endeavoured to shew how the latter was effected; let us now for a moment attend to what must be done by the fundus and body, that delivery may take place.

When the mouth of the uterus is sufficiently dilated to allow the child to pass through it, the fundus and body must continue to contract; this contraction is of two kinds, namely the tonic, and the spasmodic or alternate. The tonic contraction is chiefly performed by the circular fibres; by this contraction, the whole of the internal surface of the uterus is applied to the body to be moved, and the longitudinal fibres by this means are brought more closely into contact with it, and of course are enabled to act with more effect; this perhaps is the chief use of the circular fibres at this period of labour, as they do not, in any instance, directly contribute to the advancement of the child, as we have

already observed, and shall now endeavour to prove more fully.

We shall relate some circumstances attending the contraction of the uterus which will deserve notice, and to the truth of which every accoucheur will bear testimony : first, that a considerable degree of contraction may take place in the circular fibres without producing pain ; thus, after the evacuation of the waters, and the uterus is closely applied to the body of the child, even to a degree that would render turning impracticable—yet no pain is felt :---Secondly, when this contraction is violent, it throws the uterus into inequalities, and sometimes divides it like an hour glass ; this obtains in a degree before the birth of the child, but more especially after it, and before the expulsion of the placenta. In these instances, the contraction is obstinately maintained---but no pain is felt ;---Thirdly, if the finger be applied to the presenting part, during the continuance of this contraction, it is not found to advance :---Fourthly, when this constriction is most violent, the longitudinal fibres act, for the most part, with more force ; since they are not only obliged to effect the delivery, but also to overcome this additional resistance ; another proof of their superior strength :---Fifthly, This stricture continues without any intermission, as far as we can determine, for hours ; but this does not suspend the painful and alternate contractions of

the other fibres ; nor does this constriction relax during this alternate contraction, therefore, much time is lost and much pain endured from this circumstance ; it however yields eventually, and from the same cause, and in the same manner as the mouth of the uterus does at the commencement of labour : ---Sixthly, when the painful contraction takes place, the presenting part is pushed lower into the pelvis ; but when this ceases, it most frequently recedes a little.

From these facts, the following inferences, we think, are deducible. First, That the circular fibres may contract to almost any degree, without being attended with pain :---Secondly, That their contraction alone, however violent, does not forward the child :---3dly, That they do not possess the power of alternate contraction in the same degree as the longitudinal fibres ; and that they may exert this power, it is necessary at first to have them distracted by some force or other. 4thly, That the pain felt during labour, must in a great measure, if not entirely, depend upon the contraction of the longitudinal fibres. 5thly, That the changes the uterus has suffered from civilization and refinement must be chiefly confined to its longitudinal fibres.

From what has been said, then, the spasmodic or alternate contraction of the uterus, appears to be

nothing more than an increased effort it makes, to overcome the obstacles opposed to its progress to a state of vacuity ; and that the pain attending their contractions depend upon certain physical changes which the longitudinal fibres have undergone from the causes just mentioned. Why a particular set, or given direction of fibres should have suffered more than another, may be impossible to determine ; but that they have, we believe to be most certain. This change, however, is by no means confined to the uterus, as every strait muscle of the body appears to have participated with it : since it is admitted that the man of the civilized world has lost much of his original strength. On the other hand the circular muscles, as far as we can determine, have lost nothing of their primitive power ; since it is more than probable, that various sphincters* among which we may reckon the circular fibres of the mouth of the uterus, perform their duty as effectually and as powerfully, as in the time of our first parents.

Do not these facts emphatically account for women who have suffered these changes, having more tedious and painful labours, than those who have not undergone them,---as the women of savage nations, the women of Calabria, &c. and without the necessity of having

* The heart, or intestines may also be included.

recourse to a physical necessity, derived from the erect position of man, or the peculiar construction of the pelvis ?*

The different actions we have assigned the uterus, must not be considered as exclusively belonging to woman ;---as the brute, doubtless, has the same. It is indeed true that the labours of the brute are not generally attended with pain or difficulty, and this is urged against the idea of pain being of artificial origin, as they have also undergone great changes ; but it must be remembered they have not suffered the same revolutions as man, or at least not in equal extent ; but that the same general phenomena, progress, and casualties attend them, as occur to the human female, is most certain ; and when causes occur, capable of diverting their labours from their usual healthy course, the same difficulties take place, and are attended with the same symptoms---namely pain.

The influence of domestication has been perceived by those who are in the habit of raising cattle, horses, sheep, &c. and we are assured by them, that many lose their lives from the difficulties attending their labours. I have myself more than once

* See Osborn's Essays.

seen the mare and cow suffer extreme agony in bringing forth their young; but it must be admitted, that this does not occur so frequently as to enable us to establish any proportion between their pain and difficulty, and that of the human female; nor would it be of any use, were it in our power; all that is contended for, is, that those animals, which man have familiarized by his care, and made subservient to his purposes, have suffered, if not in equal degree with himself, yet sufficiently to justify the position....that they, in consequence of the habits imposed upon them, have been rendered less healthy, and occasionally subject to difficulty and pain from parturition.

What the ultimate effect of this familiarization (if we may so term it) may be, we cannot pretend to determine: not that it will be more extensive than it is at present, is rendered more than probable, from what we have already witnessed.

'Tis said their uteri alone, are capable of expelling their contents without pain, and without any assistance from the abdominal muscles; this may be true; as we are told by Van Sweiten† on the authority of Hemsterhuys, “ that the womb of a “ pregnant bitch, the abdomen being open, by its

† Comment. vol. 14. p. 49.

“ own efforts only, forced out the fœtus; the diaphragm and muscles of the abdomen remaining quiet and yielding no assistance.” But can we determine there was no pain attending the efforts of the uterus in this cruel experiment, since it was placed in a new situation? If pain attended, it will not be insisted on, as necessary to the delivery, but rather be considered as the consequence of the increased action the uterus was obliged to exert, to relieve itself of its load; for although the uterus, unaided by the auxiliary powers, may be capable of expelling its contents, yet it must surely be admitted, it will do it with more facility with them. The same may be insisted on, with the human female, since pain, with them, is nothing but the effect of a certain degree, or kind of contraction; neither is it the cause of the termination of their labours, but the result of that cause....namely, Contraction. Should an equal degree of contraction take place without pain, as with it, the labour would be terminated with as much speed and certainty. But can this happen with the human female? Certainly it can, and does every day.

The human uterus is as capable of expelling its contents, without the aid of the abdominal muscles, as that of the brute, and also without the interposition of pain; of the former ability, many instances are upon record; many women labouring under

ascites, have been delivered; here the auxiliary powers could give no assistance; children have also been delivered after visible life has ceased in the mother, by the aid of the uterus alone; here no assistance could be derived from the abdominal muscles. And of women being delivered without pain, it would be idle to cite them, as they must occur in every man's practice.

Pain then, must be regarded as disease, since it cannot be proved necessary; this disease has its origin in the changes produced by civilization and refinement. In what do these changes consist? This we do not pretend to answer. We might say it is in a peculiar sensibility or irritability of the system in general, or in the uterus in particular. But would this explain it? Would this not only be substituting one inexplicable phenomenon to account for another? We only know with certainty that these different states exist, but why, or how induced, is impossible to say.

We know also, and may advance it without fear of contradiction, that the female system during pregnancy and labour, is much disposed to that state termed inflammatory; and that slight causes will produce fever, or local inflammation. This is acknowledged by all writers on the subject, and has

led Dr. Rush to consider pregnancy and parturition, as diseases.

That they ought to be considered as such, in but too many instances, is certain ; for there are but few cases, in which we are not obliged to mitigate their violence, or shorten their duration.

It is not within our present view to speak of pregnancy as a disease ; we shall therefore confine ourselves to labour and its consequences.

To relieve pain, has engaged the attention of physicians from the earliest ages ; and their endeavours have been rewarded with more success in every other, than that which attends parturition. This has arisen, perhaps, from less attention being paid to this, than to the other states of pain, from an idea of its being inevitable, rather than from the impossibility or difficulty of subduing or alleviating it.

“ In sorrow shalt thou bring forth children ;” was the curse inflicted on our first parents for their disobedience ; and from hence it was inferred, that pain was not only unavoidable, but necessary ; I have endeavoured elsewhere* to shew the falsity of

* Medical Museum, Vol. 1. No. 111-

this conclusion ; we shall therefore not dwell upon it here, but proceed to shew, that the condition of woman in this particular can be much ameliorated.

The cause of pain and difficulty, for the most part, depends upon a certain condition of the soft parts that are subservient to labour ; we shall therefore consider this subject under the following heads.

First, Where rigidity of the mouth of the uterus depends on the circular fibres maintaining their contraction for too long a time, but where no inflammation attends.

Secondly, Where the rigidity is attended with inflammation.

Thirdly, Where the rigidity arises from previous local injury ; either from mechanical violence, or from inflammation and its consequences.

Fourthly, Relative rigidity, or where it proceeds from disproportionate powers, between the longitudinal and circular fibres.

Fifthly, Tonic rigidity, or where the circular fibres, remote from the mouth, embrace the body of the child too powerfully.

RIGIDITY OF THE FIRST KIND.

This particular state of the mouth of the uterus, may be divided into three varieties ; first, where the subject is very young ; secondly, where the subject has passed the five and twentieth year ; and in labour with their first children ; and thirdly, where the uterus has been prematurely thrown into action.

Var. 1. or where the subject is very young.

In this case, where the subject is very young, and has arrived at the full period of gestation, we very frequently find the soft parts concerned, to yield with great reluctance, and the labour become extremely tedious and painful. This unwillingness to yield, may arise from the uterus not having acquired its complete developement before impregnation had taken place, though sufficiently for the purposes of gestation. If this be admitted, and of which we believe there can be no doubt, we shall very readily comprehend why its subsequent actions should be performed with less order, or more reluctance, than if it had received its ultimate finish. It is a fact well known, that the uterus is one of the last organs of the body which is perfected ; and no doubt, connected with this perfection, is that of the vagina and perineum. If, then, impregnation should take place

before this period, the actions of these parts will be less perfectly performed—as the actions of parts, must depend upon the condition of the parts themselves; consequently, an uterus, &c. so situated, cannot act with such order and effect, as when parts are completely formed, and whose actions of course are properly established, or can be properly established when necessary to be called forth: hence, in very young girls or women, we frequently find the labour very tedious. The mouth of the uterus yields unwillingly; the contractions of the fundus and body are performed in a desultory manner; the perineum dilates reluctantly, and is in great danger of laceration; the head or presenting part will often remain stationary at the inferior strait, for hours, owing to the unwillingness of the soft parts to give way; so that for the most part they are stretched from the mechanical pressure of the child; the Hamorrhoidal veins become much distended; the rectum is more or less protruded, and inflammation of considerable violence supervenes, through the whole tract of the vagina, which sometimes terminates in suppuration or gangrene.

The circular fibres of the mouth of the uterus very obstinately maintain their contraction for a long time, either from their not having received their due organization, and therefore not acting exactly as intended by nature; or from the longitudinal not hav-

ing, from some cause or other, acquired their designed strength, the circular will have a relative increase of it. A great deal of time is therefore employed, and much pain endured, before the mouth of the uterus will open ; and even when it does, it seems more like being mechanically, than naturally opened. See cases, i, ii, iii.

Var. 2, or where the subject is not very young.*

The same general phenomena take place in this variety, as in the first. This kind in general however, is rather more obstinate ; the parts, from not having been employed early according to the design of nature, seem to forget a part of their duty. This kind also is more disposed to take an inflammatory action. Much may be done for this variety, by proper regimen, &c. a few weeks before labour is expected. See cases, iv, v, vi, vii, viii, ix, x, xi.

Var. 3, or where the action of the uterus is prematurely excited.

Whatever is capable of exciting the contractions of the uterus, can produce this variety ; it may hap-

* Here the subject is also supposed to have completed the term of gestation.

pen at any period of gestation ; but it is designed only to speak of it, as it takes place at the latter period of gestation. This may occur in any subject, and in any pregnancy, as the uterus is always liable to be thrown into action.

It would be useful could we always with certainty distinguish this variety from the two just mentioned ; as at its commencement, it would require very different treatment. This is not always very easy, more especially where there is a complete obliteration of the neck of the uterus. We can, however, for the most part, do it by the following marks.

First, when the uterus is prematurely excited to action, we can sometimes, (as at the eighth month) feel a portion of the os tincæ :—Secondly, when we examine the mouth of the uterus, we find it rigid, both in the absence and presence of pain :—Thirdly, when we pass a finger through the mouth of the uterus and touch the membranes, we do not find them so tense, as when the uterus is naturally disposed for labour :—Fourthly, the pains are more irregular in their accessions, and continuance ; sometimes quickly following each other, then more slowly—now long and severe, then short and trifling :—Fifthly, there is no secretion of mucus, nor disposition in the perinæum to relax :—Sixthly, there is no immediate subsiding of the abdominal tumour.

When the uterus is thus thrown into action ; if not quickly prevented, it will continue to contract until labour, strictly so called, takes place. When this happens, it scarcely ever fails being tedious and painful. It behoves us, therefore, to distinguish this state from the other, that we may, if possible, prevent the labour coming on. See cases xii. xiii.

Rigidity attended with inflammation and fever.

The cases of difficult labour, attended with inflammation and fever, occur more frequently than without them. The three varieties just spoken of, are all liable to these additional symptoms:—First, from local irritation, either of the presenting part acting mechanically on the mouth of the uterus, more especially after the evacuation of the waters; or from the officious and ill-judged interference of the accoucheur or midwife, attempting, by force, to open it : —Secondly, from improper diet or drink. When inflammation comes on, the woman becomes extremely restless, and does not enjoy that calm which is common at the cessation of pain : the vagina becomes hot and dry ; the mouth of the uterus thickens and becomes more unyielding ; the secretion of mucus, if it had taken place, ceases ; the pulse becomes quick, frequent and hard ; the respiration hurried ; the head much pained ; the face flushed ;

great thirst ; the skin hot and dry, or profusely sweating. See cases, vii, viii, ix, x, xi, xii, xiii, xiv, xv.

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RIGIDITY FROM LOCAL INJURIES.

The parts concerned in labour, are frequently made to suffer, by injudicious treatment or negligence, a degree of inflammation, that very much deranges their natural structure. Should this inflammation terminate by resolution, it does not do it so completely, as not to leave a thickening of the parts, from which they sometimes never recover ; this thickening, which is owing to an unabsorbed quantity of coagulating lymph, offers very considerable difficulties to the dilatation of the parts ; they cannot assume their healthy or natural action while this is present. At other times, when the inflammation has been considerable, an injury may be done to the neck of the uterus, &c, by the effusion of coagulating lymph, (agglutenating their fibres as it were) that they cannot ever after take on the healthy relaxation ; and of course will yield with difficulty to the propelling powers of the fundus and body of the uterus.

When inflammation has been more violent or unsuccessfully treated, it may terminate in suppuration or gangrene. In consequence of these unfortunate

terminations of inflammation, the parts, if the patient survives, heal up so unfortunately, as to leave large cicatrices, in the mouth of the uterus, vagina and os externum, which will offer immense difficulty to labour.

These parts are also subject to laceration, more especially the vagina and perineum. When these wounds heal they present very firm cicatrices through the whole extent of the injury. These scars are sometimes so firm, and so unfortunately situated for labour, that they completely resist, for a very long time, every effort of the uterus to expel its contents. See cases, xvii, xviii, xix, xx.

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RELATIVE RIGIDITY.

The longitudinal fibres of the uterus may be rendered so inactive, that they cannot contract with sufficient force to overcome the resistance of the circular. This may happen from a variety of causes, but we shall only notice one, namely, a kind of apoplexy of the uterus. This case is known, by labour having come on kindly at first, and gradually diminishing in force; by the mouth of the uterus having disposition to dilate; by its thickening,—by the presenting part not protruding during pain; by the pain extending itself all over the abdomen; by the woman's complaining of a sense of suffocation; by a hard and

full, or depressed or labouring pulse ; by the irregularity of the pains both in force and frequency. The mouth of the uterus in these cases cannot open, although disposed agreeably to the order of nature, as the fibres destined to keep it shut are relatively stronger than those intended to open it.

The contractions, therefore, of the longitudinal fibres, are feeble and transitory ; the mouth of the uterus does not dilate, though not positively rigid ; the abdominal tumour does not continue to subside ; there is a secretion of mucus, and a disposition in the external parts to dilate, which perhaps pretty clearly points out the favourable situation of the mouth of the uterus ; but it cannot dilate until the longitudinal fibres have shaken off their torpor ; or in other words, until the cause of this torpor is removed ; they then resume their healthy contraction, and the labour is for the most part quickly terminated. See cases, xxi, xxii.

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TONIC RIGIDITY.

This only occurs where the waters have been drained off a long time, and the whole of the internal surface of the uterus is closely applied to the body of the child. Such is the nature of the circular fibres, that they always contract in such a manner as to come in contact with the substance pre-

sent in the uterus ; they do not however, do this suddenly, it requires some time, and in proportion to that time, other things being equal, will be the intimacy of this contact. While the child is still in the uterus, it must necessarily present to it some inequalities; but such is the arrangement of nature in general to guard against this disposition of the uterus, that the body of the child is so placed as to offer as few as possible. But the care of nature in this particular must be often thwarted, by accidents of various kinds, which are capable of retarding the labour ; for instance, suppose the mouth of the uterus well opened, the waters discharged, the head of the child somewhat advanced, when something may happen, no matter what, that will delay the delivery of the head, or obstruct its progress ; what will be the consequence ? the uterus will apply itself to the body of the child, and be disposed to do it in all possible points ; the head being in the pelvis, the neck of the child is more or less extended ; this will offer a much smaller substance to the parts of the uterus near it, than the rest of the body ; the circular fibres will go on contracting at this part until they embrace the neck ; this will divide the uterus into two chambers as it were, and in consequence thereof the labour will be delayed, and turning rendered impracticable—hence the difficulty of this operation after the waters have been long evacuated. This peculiar contraction has been men-

tioned by authors, but none, as far as I know, have ever offered a remedy for it.

This case occurs sufficiently frequent to make it an object of particular attention; as many infants, I fear, have been sacrificed to the crotchet, from this cause intercepting delivery. See case xxiii.

Having spoken as concisely as the nature of the subject would admit, of the various causes of rigidity, we shall proceed to say a few words on the principal remedies which have been employed with a view to relieve it: they are opium, warm bath, and blood-letting.

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OPIMUM.

This has been, and still continues to be, the favorite remedy with most accoucheurs, for the rigidity of the os uteri; but we conceive, nothing but theory has ever given it employment; it was supposed, that when the mouth of the uterus did not open kindly, it was affected with spasm, and on this principle was opium exhibited; but as far as my experience goes, never with advantage. I have repeatedly tried it myself, and often seen it employed by others, but without, in a single instance, producing the effect for which it was prescribed; sometimes it evidently did mischief.

It must be remembered we are speaking of it, as given for the express purpose of dilating the os uteri, or disposing it to dilate. It has undoubtedly been used with advantage, in those cases where it was conceived the uterus was prematurely excited to action—it has suspended the contractions for the proper time, and when they were renewed the uterus was healthily disposed, and the labour soon finished—but here it was given, not to dilate the mouth of the uterus, but to suspend the contractions of the longitudinal fibres. This medicine cannot, we conceive, ever be recommended with any chance of success, where the object is directly to make pains more efficient, by taking off the resistance of the mouth of the uterus.

Nor can this drug be considered as an innocent one; that is, if it does no good it will do no harm; on the contrary we believe it to be extremely mischievous, in many cases converting the rigidity without inflammation or fever, into those with them; this I have more than once seen, and but too frequently had reason to regret.

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WARM BATH.

I shall beg leave to transcribe the observations I have before made on this remedy, from 2d. vol. No. II. of the Medical Repository of New-York. It

was written in consequence of a request of one of the editors of that work—Dr. E. H. Smith.

“ The warm bath is by no means a new remedy in that species of labour*, in which I have thought blood-letting of so much consequence. Few writers on the subject of midwifery have failed mentioning it, among other means to overcome the rigidity of the soft parts in laborious labours, that do not depend on a mal-conformation of the pelvis. The French accoucheurs more particularly make frequent mention of it; yet none of them, that I am acquainted with, have laid any particular stress upon its virtues in these cases, or place any great dependence on its effects. It has been rather recommended as a probable, than as a certain remedy, and stands upon much the same footing as opium—sometimes perhaps, succeeding, but much more frequently failing; with me it has ever been of little or no consequence; nor can I obtain a more favourable character of it from the friends I have consulted. The result then, of my experience, enquiries, and observation, may be reduced to three heads: 1st. It being almost always inconvenient: 2dly. it being sometimes, ineligible; and 3dly. it being always limited and uncertain in its effects.”

* See Med. Rep. vol. 2.

“ The very great difficulty that attends the warm bath, makes a very strong objection to its use ; or, in other words, renders it almost impossible to be employed, as very few people are in possession of a suitable apparatus. It might, however, on extraordinary occasions, be procured, with some difficulty ; but much time would be lost, particularly in the country, where this kind of labour is by far the most frequent. The lancet we may always have at hand.”

“ It is sometimes ineligible ; occasioning in some instances, very profuse and alarming hæmorrhages. A fatal instance of this kind happened not long since, in the practice of a physician in the neighbourhood where I formerly lived. It was universally attributed to the warm bath ; and the Dr. himself, in a conversation with me, inclined to the same belief ; at the same time assuring me he derived no advantage whatever from it, as the parts were no more disposed to yield than before ; and the woman eventually suffered a lacerated perineum. The warm bath in this instance evidently did mischief, by preventing the tonic contraction of the uterus from taking place, whereby the vessels were not contracted upon, and a fatal hæmorrhagy ensued. This is not the only instance in which it has done harm in this way. A Dr. Tom, who had an extensive practice in this line, and who was in the habit of employing

the warm bath in these cases, informed me, he never failed producing a more than ordinary flow of blood from the uterus ; and in some instances to an alarming degree. He urged however in defence of it, that he knew of nothing better—Opium had always failed with him—and that he considered the warm bath as a *dernier resourse*, adding, he sometimes thought it had done good. Besides, cases occur where we could not leave our patients sufficiently long to derive any advantage from the bath, were any to be expected, without running a risk of the most dreadful consequences ensuing : for instance, the case I sent you some time since.* In this case it would have been impossible for me to have left my patient a minute for her to have been placed in the bath, as it needed not only all my care, but likewise great exertion, to prevent the head of the child escaping through the anus, &c. Again, the inconvenience, nay, the almost impossibility of rendering the woman proper assistance when in the bath, will readily occur, and will be an additional objection to its use. But above all, the extreme indelicacy that must appear, when employed in that situation, were it practicable, would be sufficient to render it the dread of the woman, and the aversion of the modest practitioner.”

* See Med. Rep. vol. 2, p. 24, or case 17 of this essay.

“ With me, and my friends, it has always been limited and uncertain in its effects—so much so, (as I have already observed) as to be of little or no consequence, its influence having never extended beyond partially relaxing the more external parts, and even this continuing but a short time after the bath has been desisted from. I have never known it have the least effect on the neck or mouth of the uterus; nor can I find it has ever done so, unequivocally, in any instance as far as my inquiries have extended. It frequently produces no effect whatever, not even on the external parts. And should it even relax these, no great advantage would be derived as long as the mouth of the uterus continued rigid; and I cannot find it has ever had this effect. The yielding of the neck of the womb appears very often to be a distinct process, from the relaxation of the other soft parts; at least they do not always keep pace with each other; having frequently seen the uterus well dilated, with a very rigid os externum, and vice versa; the one attended with an increased secretion and discharge of glaring mucus; whereas the other is not accompanied with these marks. The vagina and external parts sometimes, after having been well relaxed, become again rigid and unyielding; but the uterus after having been once well dilated, (never as far as my observations extend) closes, and makes resistance, until after the expulsion of the child; so

that it appears that all these parts are not influenced at all times, by the same laws or causes.

“ It may at first sight perhaps appear a paradox, that in some cases I should fear the warm bath producing a too great discharge of blood from the uterus, and directly after assert, that in no one instance could I find it had any effect on the os uteri. But I do not perceive any contradiction here, as every body must admit, that the developement of the neck of the womb, or its perfect expansion, must be a very different process from its tonic contraction. In the one instance, a peculiar arrangement of the fibres which constitute the neck or mouth, takes place, so as to allow of the passage of the child, &c. Whereas in the other instance, the power which reduces the uterus to its original size after the expulsion of its contents, and by which a too great discharge of blood is prevented, is diminished—hence hæmorrhagy. And we may safely, I think, in some instances conclude, that the warm bath, although it does not produce relaxation, may yet prevent contraction.”

“ Besides what I have urged above, I must not omit telling you I have experienced, in the most convincing manner, the superior efficacy of blood-letting, to the warm bath. A case occurred that put the two remedies, I think, to a very fair trial. A

woman had been a long time in labour, and from the rigidity of the parts concerned, the midwife entertaining no hope of a speedy delivery, thought proper to send for a physician. He ordered the warm bath, and thirty-five drops of laudanum ; these not succeeding as he expected, the woman was again ordered the bath and the anodyne. Several hours were spent in this way ; the woman every hour or two was placed in the bath, and took fresh quantities of laudanum—but all without benefit. I was now called in. It was agreed that the woman should be very fully bled ; this was done. When upon the loss of about thirty ounces of blood, she grew very sick and faint ; her friends became uneasy, and would not allow the bleeding to be carried to complete fainting. I was obliged to tie up the arm and rest satisfied with what was already drawn ; this fortunately proved sufficient ; for the parts began immediately to relax, and in about three quarters of an hour, she was made the happy mother of a living child.”

I shall only add, that subsequent experience has more fully confirmed me in the opinion that the warm bath by no means offers a substitute for blood-letting.

.....

BLOOD-LETTING.

This remedy is by no means a new one, in labour ; but employed for the express purpose of diminish-

ing pain, and subduing the various species of rigidity just spoken of, and carried to an extent that will ensure these objects, that is, diminishing pain—disposing the os uteri to dilate ; the external parts to unfold, and cicatrices to yield, originated, as far as I am acquainted, with myself. This remedy was suggested to me by accident, but has ever since been employed from reason and experience.

In the summer of 1789, I settled at Abington, and was quickly introduced to a large share of obstetrical practice ; in September of that year my attendance was bespoke for Mrs. H. W——, whom I was informed had suffered every thing but death from her labours ; the crotchet had several times been employed to effect the delivery of her children. She looked forward with great solicitude and apprehension, and indeed almost considering herself a certain victim to the approaching labour. I had also very great fears for my patient, as I was young, and had not had much experience ; these forebodings were presently very much augmented, by my being called to her under a severe hæmorrhagy from her lungs, which quickly reduced her to a state of extreme debility. Before she recovered from this state of weakness she was taken suddenly in labour, which encreased my apprehensions almost to desperation, lest she should die under my hands. As I approached the house, I was met by several of her

friends, who with great earnestness begged me for God's sake to make all possible haste ; I proceeded immediately to her bed side, and in about fifteen minutes delivered her of a fine healthy child ; no accident supervened ; she had a much better getting up than could possibly have been expected, from the extreme state of weakness she was in, when surprised by labour.

As this was so very different from all her former labours ; as it was easy, rapid, and safe ; and more especially when a result so very difficult had been expected, I could not help being very powerfully struck with the circumstances. I had to reason very little on the subject, for it immediately occurred, it could be from no other cause than relaxation, produced by the excessive and alarming hæmorrhagy. I quickly resolved to take advantage of this kind hint, by endeavouring to imitate this good example. I had not to wait long before I had an opportunity of putting my new plan in practice ; a Mrs. M——, who had suffered in almost an equal degree with Mrs. W——, in her labours, was under the care of a midwife ; she had been in labour ten hours ; I found her with considerable fever ; a hot and dry vagina, and rigid os uteri ; pains frequent and severe, but without much bearing down, as it is termed. I immediately bled her pretty freely ; but this had not the desired effect, of either reliev-

ing her fever, or giving disposition to the mouth of the uterus to relax. At the expiration of half an hour, I again bled her to a considerable extent ; that is until she became very sick and weak ; upon examination I found the mouth of the uterus sufficiently opened ; the vagina moist ; and the external parts completely disposed to yield ; the pain from the contraction of the uterus considerably diminished ; and the labour was shortly terminated. This case I considered of immense consequence, as it appeared to put me in possession of a certain remedy for this kind of labour.

It would be unnecessary to relate all the cases in which I advantageously employed this, I had almost said divine remedy—many of the women of Abington speak of it in rapturous effusions of gratitude. In December 1793, I again returned to this city, where I have continued with all my former success, to employ this remedy, even in cases, where reason could scarcely bid us hope for it.

We can, with a confidence that ought only be produced by experience, recommend this operation, not only as a safe, but a certain remedy, for all the objects we have just contemplated ; and we feel the more security in doing this, since it has met the approbation of our venerable and experienced professor of anatomy, and midwifery, Dr. Shippen ; who has

declared, with a candour that does him honour, he could have spared much pain and misery to many of his patients, if he had used the lancet more freely in tedious and painful cases from rigidity.

We shall now proceed to relate a few cases, selected from many, which will illustrate the practice, in the various kinds of rigidity we have spoken of.

VAR. 1. CASE 1.

Miss V——, aged 14 years and 6 months was taken in labour, January 14th, 1790. She had been in labour 36 hours before I saw her ; that is, she complained of pains for that period, though they were not very severe ; about twelve hours before I visited her, the waters were discharged ; the mouth of the uterus very little opened, and the external parts not favourably disposed ; the pains were now very severe, and the head was pressed pretty far into the pelvis ; she was extremely constive, and had passed no water for many hours—an injection was ordered, which operated freely ; the catheter was obliged to be introduced, and nearly a quart of water was drawn off—she was much relieved by these discharges—an hour was given, in hopes a favorable change might take place in her labour—there was no heat of any consequence in the vagina ; she had been very rarely touched ; she had

frequently by the midwife's advice, been placed over warm water, and fumigated with burning onion-shells, (a favorite remedy with the old women of the country) but all to no purpose—I bled her 15 ounces ; this produced some little change on the mouth of the uterus, but not sufficient to allow the head to escape, more especially as the mouth contracted and stiffened with each pain ; in an hour she was bled as much more—this produced sickness at stomach, which was my signal for stopping ; upon the next examination the parts were found sufficiently dilated ; there was a short suspension of the pains, but they soon returned, and were found of competent force, though much more tolerable ; the labour soon terminated.

CASE II.

1790, June 10th. Mrs. S. F. aged fifteen and a few months ; had been in labour ten hours, when I was called ; the head had nearly escaped from the uterus, and was applied very forcibly against the perineum ; the os externum small and rigid ; the head, as I was informed was thus situated, more than three hours, without the least observable alteration ; the midwife very judiciously made a firm pressure against the external parts. She was bled very liberally ; the parts almost immediately yielded, and the head passed without difficulty or laceration. This labour, without doubt, was rendered

safe and mild by the bleeding, as I am persuaded, that it would have been protracted much longer, besides the risk of laceration.

CASE III.

1792, June 11th. Mrs. F—, aged 17, very small of her age, never menstruated until after marriage ; was taken in labour with her first child ; pain came on very gradually for the first few hours, then augmented very considerably for some time, and then subsided almost altogether ; this flagging of the pains was considered as a proof of weakness, and to obviate it, stimulating drinks were liberally given ; pepper, thyme, ginger and onion-tea, had each their trial without advancing the labour. Her friends became alarmed, and I was sent for ; I found her with much fever, severe pains, profuse sweats, hot vagina, swelled labia, and rigid os tinæ. I proposed to bleed her, but this she would not permit ; she was placed in the warm bath by way of substitute ; mild drinks were given, and her bowels were opened by injection. Warm water was frequently thrown up the vagina, but without any observable effect ; I again proposed the bleeding, but it was again rejected. As I had observed that bleeding had done good almost in the proportion to the sickness it excited, I thought of giving emetic tartar in small doses until nausea was produced ; I soon

brought the stomach to this state, which was kept up with considerable severity for two hours, but without any good effect. I now urged the bleeding as the only chance of benefiting her ; to this at length she reluctantly submitted ; she was bled twice in an hour, the last of which was copious, and had the long looked-for effect—the uterus dilated almost instantly after the bleeding, and the external parts yielded without any difficulty ; the child was delivered in half an hour.

VAR. II. CASE IV.

1790, August 30th. M. M. in labour with her third child ; she had suffered very severe pains for thirty-six hours ; the waters had been evacuated twelve hours ; the vagina hot, and dry ; the external parts much swoln ; the mouth of the uterus thick, firm and but little dilated ; much fever ; bounding pulse ; severe head-ache ; great thirst ; much anxiety and restlessness ; I bled about fifteen ounces, but with no evident advantage ; at the end of an hour she was bled twenty ounces more ; this seemed to affect her considerably ; but its use was but transient ; she was presently bled twenty ounces more ; she became extremely sick ; the parts quickly dilated, and she was delivered in half an hour more.

CASE V.

1799, February 1st. Mrs. M. A—, aged twenty, with her first child ; the first part of her labour was quickly performed ; that is, the mouth of the uterus opened easily, but the perineum offered immense resistance----it was very thick and dense, and as soon as the pain ceased, the head of the child would recede very considerably : several hours were spent in the expectation that this part would yield ; my patient became very uneasy, and I proposed bleeding----She consented most willingly ; I was obliged to send for a bleeder for her, as I could not be spared from the perineum, lest when pressure was removed, it would suffer laceration. After about twenty ounces had flowed, I found an evident change in the parts, and before ten more were drawn, the child was delivered.

CASE VI.

1790, February 17th. Mrs. S. C. aged forty ; with her first child ; she had been long in labour before I saw her, and had suffered much pain ; she had pains in very quick succession ; the waters were still undischarged ; the uterus opened to about the size of a quarter of a dollar, its edges very firm----no disposition in the external parts to relax. She was bled very largely, (40 ounces) and was delivered in half an hour.

CASE VII.

1796, June 13th. I. S----, aged thirty-two, with her first child. She had been fourteen hours in labour; the head was low in the pelvis, and escaped from the mouth of the uterus; it pressed violently against the perineum which shewed no signs of quickly yielding. She was bled, standing on her feet, twenty ounces; she became very sick; the parts yielded soon, and the head passed with a few pains.

CASE VIII.

1799, May 18th. Mrs. T. aged forty-one, with her first child. She had suffered pain for two days and two nights without any apparent advancement of the labour. I was sent for, and from the little appearance of relaxation, and the desultory manner of her pains, observed I rather thought it would go off for a few days. With a view to prepare her for the exhibition of an anodyne, I bled about sixteen ounces, and she fainted; there was a suspension of pain for an hour or a little more; at the end of this time they returned in quick and regular succession, but with considerable abatement of severity. She was delivered in less than another hour.

Many more cases similar to the above, might be given, but we deem these every way sufficient for the purpose for which they are intended.

CASE IX.

1791, January 5th. Mrs. A. H. C. in labour with her second child. She had suffered many hours, without evident advantage ; she had great thirst, fever, and anxiety ; she had slept none from the time she had been taken ; skin parched ; the vagina hot ; the mouth of the uterus nearly closed ; no secretion of mucus. She was bled to sickness ; this was produced by a very few ounces, as she was much alarmed at it----no change was produced ; she was again bled in an hour, with some advantage ; that is, there was less fever, pains not so severe, the parts less hot ; but the uterus remained in statu quo ----she was again bled in another hour, with the happiest effect. The child was soon delivered, and the mother had a rapid convalescence.

CASE X.

1797, July 10th. Mrs. Le B——, in labour with her third child ; the arm presented and had been down twelve hours ; much fever, dry skin, great restlessness and anxiety, face much flushed ; pains not frequent, but very severe ; the vagina hot and dry, for she had been much handled ; the child's arm very much swelled, and the mouth of the uterus was contracted closely round it, and was very rigid ; there was no possibility of turning, under

these circumstances. She was bled upwards of eighty ounces in five bleedings, in as many hours ; the last bleeding produced fainting ; the mouth of the uterus relaxed, and the child was turned without difficulty. This lady feels her after pains in her right knee ; this has obtained with all her children ----they are as regular as when felt in the region of the uterus.

CASE XI.

1802, January 29th. Phœbe Hall, a black woman, in labour with her seventh child : arm presented and had been down several hours ; the arm considerably swelled, as the midwife had exerted much force on it ; the mouth of the uterus contracted closely on it ; I got Mr. Carter, now Dr. Carter to introduce his hand into the vagina and place a finger in the mouth of the uterus ; he did this with some difficulty, as the uterus was very rigidly closed on the arm—I tied up her arm and let her bleed until he should tell me the mouth of the uterus was sufficiently dilated ; when I had drawn from forty to fifty ounces she became sick and faint ; at this instant Mr. Carter cried out with rapture, the uterus was sufficiently opened—upon examination this was found to be the case ; the turning and delivery was soon accomplished.

It must be observed, that labours attended with fever, have always been found to require considerably more bleeding than where none attends ; and it has also been found best in these cases, to draw blood at two or three times, letting the last be carried either to fainting or sickness.

VAR. 3. CASE XII.

1790, Jan. 29th. Mrs. M. L——, with her first child, aged 20 ; after having stood all day at the ironing table, was seized with pretty regular pains. There was no subsiding of the abdominal tumour ; no secretion of mucus ; the os tincæ was not entirely effaced. There was very little tension of the membranes during a pain ; from these circumstances I was disposed to believe the uterus had been prematurely excited into action ; she was ordered to lose 12 ounces of blood, to keep quiet, and receive an enema of a gill of water and a tea-spoonful of laudanum—pain soon subsided, she went a fortnight longer, and her labour proceeded kindly, and was not of long duration.

CASE XIII.

1790, August 11th. Mrs. C——, pregnant of her third child, aged 28 ; after a severe fright was seized with pains ; as her midwife was engaged at

the times he was sent for, with another patient, I was called on ; from her not getting her midwife, she became very much alarmed, and her pains ceased for six hours. At the expiration of this time they returned ; and soon after the midwife arrived ; she examined her, and found nothing like labour ; she therefore gave her a large dose of laudanum, which not having the desired effect, was repeated, in the course of two hours ; her pains became more violent ; she had much fever, and attended with delirium. I was again sent for ; upon examining the state of the uterus, I was pretty certain it had been forced into contractions by the fright in the first instance ; and continued in this situation by the improper conduct of the midwife ; but things had now come to that pass, that it would have been in vain to have attempted stopping their progress. The mouth of the uterus was thick and hard, and opened to about the size of half a dollar. As there was so much fever, I thought proper to bleed and purge her ; these had a good effect, as her fever and delirium were diminished, but the uterus was still firm, and not augmented in size since she was examined before ; (6 hours) I again bled her pretty largely, the delirium went off entirely, the uterus opened and she was delivered in less than an hour.

I am disposed to believe this case would have had a serious termination from the violence of the symp-

toms, had she not been bled very liberally—she lost about 50 ounces at the two bleedings.

This case also serves as a contrast to the case preceding ; for I have no doubt but what the bleeding which preceded the anodyne, enabled the latter to produce its beneficial effects ; and I am also equally certain that had a bleeding in this latter case been premised, the patient would have suffered abundantly less, and gone some time longer.

CASE XIV.

1805, February 13th. Mrs. C——, with her first child ; she had been 48 hours in labour when I was called ; the waters had discharged 14 hours—her pains severe but irregular ; the mouth of the uterus opened to about the size of a quarter dollar, but very rigid ; the vagina, &c. very hot and tender ; pulse frequent and hard—she supposed she had just entered her eighth month, and was seized with pains in consequence of a fall ; a midwife was sent for, and she endeavoured by stimulating, drinks, frequent and rude touching to provoke labour. She was bled twice in four hours, to the amount of 22 ounces ; received a purgative injection, which operated well, but without producing any change in the uterus. The head presented naturally. Two hours more were allowed to pass, with a hope of things

doing better—but no alteration being produced, I made Mr. King (a young gentleman who staid at my request with the patient) tie up her arm, while standing on her feet, and take blood until she nearly fainted, she was then laid in the bed, and after an exemption from pain for about fifteen minutes, they came on very rapidly ; the mouth of the uterus was found completely dilated, and the child was delivered in a quarter of an hour more.

CASE XV.

This case was kindly furnished me by Dr. Shaw, I shall therefore relate it in his own words.

DEAR SIR,

The following is the statement of Mrs. M. Q——'s case ; I give it you as correctly as circumstances will admit.

Saturday, 5th October, 1805, this woman walked from the country to Philadelphia, a distance of 23 miles ; agreeably to her calculation she was entering her eighth month of pregnancy. On Friday the 11th, symptoms of labour were felt ; that is, she had pain in her back, sides, &c. accompanied with alternate flushes and chills ; these symptoms continued until Monday, when she was attacked with an hæmorrhage from the uterus. A midwife was sent

for, who mistaking her case, immediately attempted delivery by rupturing the membranes and discharging the waters, but finding her efforts ineffectual, after doing considerable violence to the vagina and neck of the uterus, by her frequent and officious examinations, left the woman undelivered and without pain. She remained in this situation until the following Wednesday afternoon, at which time I was called to her ; slight pains had returned, and on examination I found the parts very much swelled, and painful to the touch—the mouth of the uterus was not dilated more than an inch in diameter. About half past 10 o'clock, P. M. her pains became stronger, but the mouth of the uterus shewed no disposition to dilate—agreeably to your friendly advice I had her taken out of bed and placed in an erect posture ; a vein was opened in her arm, and by the time 16 ounces of blood were drawn, syncope came on, and she was immediately replaced in bed—after she revived, her pains increased, but the mouth of the uterus still remained contracted ; at half past 12 o'clock (Thursday morning) about 6 ounces more of blood were taken, which also produced fainting ; she was now examined, and I found the mouth of the uterus dilated to about three inches—after she had recovered so as to take a little wine and water, a few small pains came on, and at 10 o'clock she was safely delivered.

Yours sincerely

WILLIAM SHAW.

Oct. 22d, 1805.

We might easily encrease the number of cases of this kind, were it necessary ; but as these cases resemble so exactly those already related, after the uterus refuses to be tranquilized, that to give more would be mere repetition. We would, however, suggest two rules in the management of these labours; first, always try to quiet the uterus, when we have reason to believe its action has been prematurely excited, by first bleeding, and then giving laudanum by injection. Secondly, when we find we cannot suspend pain, to be careful to abstract all stimuli as much as possible ; to have the bowels well opened ; and allow the circular fibres of the mouth to be a little fatigued (which we can determine by their readily yielding, when the finger is made to stretch them in the absence of pain) before we employ a large or a sufficient bleeding to effect the farther dilatation.

Bleeding alone, sometimes quiets this premature commotion of the uterus, as the following case will prove.



CASE XVI.

1806, January 10th. Mrs. C——, aged 19, and subject of case 14 ; pregnant of her second child, was attacked with pains, which she bore all night ; in the morning I was called to her ; she seemed to

suffer much, but from examination was certain the pains were premature ; her pulse was full and tense ; she lost 12 ounces of blood, which very much diminished her pains, but did not subdue them : in the evening, her pulse continuing still active, she lost as much more, and was very soon entirely relieved. In about a fortnight after, she was again seized in the same manner, she was again bled and obtained ease ; at the expiration of another fortnight she was again attacked ; these were the genuine pains of labour, and she was delivered in about two hours.

Rigidity from Local Injury.

Notwithstanding my frequent use of blood-letting in certain cases of difficult parturition, I was an entire stranger to its effects, where the parts had suffered considerable derangement from inflammation or laceration ; as no case of the kind had ever come under my notice until the time I was called to the subject of case 17 ; and perhaps I might still have remained ignorant on this head, had not my friend Dr. Physick proved, how much could be done in a forlorn hope, by bleeding *ad deliquium animi*. I have no doubt, from former experience, but I should have employed this remedy to a very considerable extent in the cases under consideration, but must

confess I think it more than probable I should not have ventured to produce syncope in cases of cicatrized vagina, &c. as relaxation could not be anticipated from any remedy, had not its safety been proved by previous experiment. But now I am so well satisfied of its innocence, and its extensive usefulness, that I should never, in cases judged proper for the trial, hesitate a moment in employing it. I have earnestly inculcated its safety, and I trust have proved its usefulness. I would remark here, from long experience, that I have never known it fail in being serviceable, or ever saw it any degree do harm. The following cases will confirm its power, where had it failed, no resource would have been left but in the application of cutting instruments. There are instances on record, where this alternative has been employed, where I am disposed to believe, bleeding *ad deliquium*, would have succeeded. Baudelocque, one of the most scientific and experienced accoucheurs of the age, Vol. III. p. 205, par. 1960, says, “ Sometimes the part which constitutes the neck of the uterus in the later periods of pregnancy and in the time of labour, is hard, schirrous, incapable of any extention or dilatation, so as entirely to hinder the exit of the child. After a convenient delay to ascertain that the efforts of nature cannot overcome the resistance, and the administration of proper methods to relax it, it must be cut in several places, as some practitioners have done. Their in-

cisions are preferable to rents, which might take place in it, and have never been attended with the same consequences.”

“ The orifice of the uterus may be closed, either completely or incompletely, at the time of labour. Its perfect closure is always posterior to conception, but an incomplete one may exist before. In all cases, the orifice must be restored to its original state, and be opened with a cutting instrument, as soon as the labour shall be certainly begun.”

Would it not be better in such cases always to try first, the effects of blood-letting? and do not the following cases warrant a belief, it would succeed?

CASE XVII.

In June, 1796, I was called to Mrs. T——, in labour with her second child. The following account I received on my arrival, from the midwife. “ She had been in labour sixteen hours; the waters discharged, six; the mouth of the womb but little opened; and, when in pain, the os externum seemed to close up. Many things had been given her to

* See Med. Repos. Vol. II. No. 1. p. 24.

force the labour ; but the child was still as high as ever. She had passed no water for twelve hours, and was very costive.”

I found her very feverish ; complaining of great heat in her abdomen, and violent pain in her head. On examining per vaginam, I found, as the midwife had stated, that the os tinæ was but little dilated, its edges very rigid and hot—as was the whole tract of the vagina ; the rectum much distended by hardened fæces, and the bladder considerably by urine. The head of the child was still above the brim of the superior strait ; but could not exactly determine its situation with respect to the pelvis, as the os uteri was not sufficiently opened for this purpose.

I immediately bled her twelve or fourteen ounces and ordered an injection, which procured two stools, and a discharge of urine. I again examined her, and found the mouth of the uterus more dilated (it being now opened to about the size of half a crown) which enabled me to determine the precise situation of the head. It was a perfectly natural presentation, and the vertex had now descended lower into the pelvis. The pains were very powerful. The head at length cleared the superior strait, and the vertex was about to turn under the arch of the pubes, but completely enveloped by the uterus—during pain the perineum was much distended ; the os ex-

ternum, instead of yielding to the impulsive force of the uterus, rather closed, so that two fingers could not be retained; a seam or cicatrix, from her having had the perineum lacerated in her former labour,* formed a kind of barrier; and the head, in consequence, was thrown to the right side of the inferior strait, where the parts were so extremely stretched, that I feared each pain would make the head burst through them, in spite of every exertion to the contrary.

From the oblique situation of the head, with respect to the vagina, the os externum, instead of answering to the axis of the inferior strait, mounted directly to the pubes; and consequently, the right side of the vagina, perineum, and rectum, had to support the major part of the force exerted by the uterus and its auxiliary powers. In order to counteract their influence, I supported the external parts with my hands, and made, during each pain, a strong

* The laceration ran from the inferior termination of the left labium, to about the termination of the sacrum. I judged of the extent of the injury by the cicatrix, which could be easily traced to this place. And indeed, conversing with the gentleman who had delivered her, he confirmed my supposition. It was a long while healing; and her health suffered much from the excessive and long discharge. But from this she recovered, and when I saw her she appeared in robust health. She was about twenty-two years of age; of short stature, and rigid fibre.

pressure against the head, and directed the woman to suspend her voluntary powers as much as possible. Six hours were spent in this manner, without advantage ; the os uteri still rigid, hot, and but partially dilated ; the os externum still not disposed to yield ; and the cicatrix as firm as ever.

The head, notwithstanding my efforts to prevent it, advanced ; so that the vertex, covered by a portion of the uterus, had partly emerged from under the pubes. At this period it was extremely difficult to touch the mouth of the uterus, as it had receded towards the sacrum in proportion as the vertex had descended. The soft parts were very hot and dry ; I began to be much alarmed for the fate of my patient. What to do I did not well know : I was ten miles from the city, and no one near me on whose judgment I could rely. In this dilemma I had nearly resolved on dividing the parts, thinking this preferable to letting the head force its way through them, which I began to consider inevitable, when fortunately Dr. Physick's case of luxated humours occurred to me, and determined me to try the effects of bleeding *ad deliquium animi*. I represented to the friends of my patients, the danger of her case ; the possible result of the bleeding ; and the inevitable one did it not succeed. They agreed to the trial. I had her placed erect, while the midwife strongly supported the perineum, &c. and opening a vein al-

lowed it to bleed until she fainted.* She was then again placed on her side.

On examining her now, every thing appeared better ; the external parts were perfectly soft and yielding, and the os uteri pretty fully dilated : but no pains succeeded. I waited in this way half an hour —(the patient continuing very faint) and no pain coming on, and the parts being now in a proper situation for delivery, I introduced the forceps, and delivered a living, and healthy child. The parts very readily yielded without laceration: the woman had a rapid recovery.

CASE XVIII.†

On the 12th of September, 1798, I was requested to visit the wife of Samuel Griffith, in consultation with Dr. Jones. Mrs. G. I was informed by the doctor, had been in labour sixteen hours ; the waters were evacuated early in her labour ; her pains, frequent and brisk ; but there was not the least disposition in the soft parts to dilate.‡

* The quantity drawn was upwards of two quarts.

† See Medical Museum, vol. 2, no. 1, p. 27.

‡ This patient, like the one whose case was formerly given,|| had suffered a laceration of the perineum to a very great ex-

I sat down to examine our patient, and found the os externum scarcely large enough to admit the finger, and it was mounted up closely against the symphysis pubis, in consequence of the perineum being very much distended by the head of the child. The os uteri was rigid and but little opened ; a kind of bridle or small column of flesh ran from the inferior edge of the os pubis, and lost itself in the perineum below ; against this the head was firmly pressed. The head was situated naturally, and so far advanced, that the vertex was about to emerge from under the arch of the pubis, covered with the uterus ; it had been thus fixed for nearly six hours previous to my seeing this patient ; and all that had been done, was the occasional exhibition of tinct. opii : with steady pressure against the perineum, to

tent ; the parts, after a considerable lapse of time healed up, but so unfortunately, as almost entirely to obliterate the vagina. I was called upon for my advice when in this situation, and found the case truly distressing ; the passage or vagina was contracted, so as not to exceed in size a common quill ; the parts extremely callous, and a constant and profuse discharge of fœtid, acrid pus, kept the poor woman in a continued state of misery and ill health.—My friend Dr. Physick was also consulted ; by a persevering use of sponge, tents, &c. the parts became sufficiently dilated to admit imperfectly, the venereal congress ; soon after, she became pregnant, and the consequences of this pregnancy, furnish the above case.

prevent the escape of the head through it. In this situation of affairs, what was to be done ?

My ingenious and much lamented friend, Dr. E. Smith, of New-York immediately after the receipt of my former case, suggested the trial of an infusion of tobacco, in similar cases, to supercede the use of such extensive bleeding as had been employed in it ; affirming its effects were very similar to those produced by copious blood-letting ; such as nausea, vomiting, syncope, and consequently relaxation.—The idea pleased me, and I was determined to employ it the first opportunity ; the case under consideration, I believed to be as favourable a one as could occur, and I accordingly proposed it to Dr. Jones ; he cheerfully agreed to its trial ; a strong infusion was made of the tobacco, and a quantity of it, with some difficulty, after several ineffectual trials, was thrown up the rectum. It produced great sickness, vomiting, and fainting ; but the desired relaxation did not take place ; we waited some time longer, but with no better success. In the course of an hour, or an hour and a half, the more distressing symptoms produced by the infusion wore off, and resolving to give the remedy every chance in our power, we got our patient, with some difficulty, to consent to another application of it ; its effects were as before—great distress, without the smallest benefit ; the soft parts remaining equally rigid as before its exhibition.

Supposing the bridle just spoken of might have some influence on the developement of the external parts, I divided it, but without any evident good resulting from it. I now proposed the remedy that had so completely succeeded in a former case—bleeding nearly to fainting ; this was consented to. We had our patient placed upon her feet, taking care to have the perineum well guarded during the operation. Upon taking away about ten ounces of blood, she became very faint;* she was immediately laid upon her bed ; the most complete relaxation had taken place, the forceps were applied, and our patient was delivered, in a very few minutes, of a fine healthy girl. The mother was put comfortably to bed, and every thing went on in the ordinary way until the sixth day, when she was seized with a violent cholera morbus and convulsions, (to which complaint she was subject) and died in twelve hours.

This case, notwithstanding it ultimately unfortunate termination, fully establishes the influence of blood-letting in this very distressing kind of rigidity, and proves it to act differently from tobacco, notwithstanding the latter produces nausea, vomiting, and syncope ; and also, that, the quantity of blood

* The subject of this case was a delicate woman, and went to become very faint, upon the loss of a little blood.

lost in some instances may be very small, to induce the desired relaxation.

We conceive, that no possible blame can be attached to the bleeding, in this case ; as the woman was very well until the sixth day, when, a disease, to which she was subject, happened, and carried her off.

CASE XIX.

On the 26th September, 1800, I was called to visit the wife of Michael Falkrod, at Frankford, in consultation with Dr. Ruan. She had been in labour twelve or fourteen hours, with her second child ;* the pains frequent and strong, the waters discharged some time ; the head was situated favourably, and completely occupied the vagina ; the pereneal tumour large ; the os externum not larger than a common finger ring ; admitting the finger with some difficulty, in the absence of pain ; during pain, thrown up against the inferior edge of the pubes, in such a manner as not to admit the finger, or allow it to be retained if previously introduced. Externally a large cicatrix was found running to the very verge of the anus ; internally it could be tra-

* With the first, she had suffered an extensive laceration of the perineum.

ced farther. This cicatrix prevented the unfolding of the external parts, so effectually, that the repeated efforts of the uterus for several hours were insufficient to make them yield, though the head had been closely applied to them during that period.

This patient was a strong healthy woman ; considerable fever had been excited ; the pulse strong, frequent, and hard. I proposed bleeding *ad deliquium*, to which Dr. Ruan consented. We immediately opened a vein, and took about forty ounces of blood, but as her pains were so rapid, we were obliged to take it from her in a recumbent posture, and no disposition to syncope was manifested. This quantity however had some effect, as there was evidently a beginning relaxation, and an abatement of the violence, and frequency of the pains. We now agreed upon a second bleeding, and to have it taken in an erect situation. We, with some difficulty, effected this; when upon taking five and twenty or thirty ounces more, she fainted ; she was laid upon the bed, and in a few minutes, by the forceps, was delivered of a fine healthy boy. Our patient recovered rapidly without accident or drawback.

CASE XX.

February 26, 1803. I was called to the same woman in labour with her third child ; the same cir-

cumstances attended, and the same remedy was employed with a similar effect. This case was witnessed by Mr. Bond, an ingenious young gentleman of Baltimore.

CASE XXI.

1792, Aug. 17. Mrs. T. S——, aged 28 years, in labour with her first child ; the pains commenced regularly and pretty severely for some time ; they then became more desultory, both in recurrence and in force—she took from the midwife stimulating drinks, which rather increased her unpleasant feelings, such as a sense of suffocation, heat and pain all over the abdomen, sickness at stomach, &c. Without augmenting the force or frequency of her pains—when I was called to her she was labouring under all the distressing sensations just mentioned, together with a depressed pulse, frequent sighing, great uneasiness, and apprehension—the mouth of the uterus was not much dilated, though quite unresisting when attempted to be stretched ; its edges were thickened, but not tense ; when pain came on very little impression was made on the child, and the mouth of the uterus rather contracted than opened. As much oppression about the præcordia attended, and great heat in the abdomen, I determined on bleeding her ; I took from her arm about twenty

ounces, before the oppression, and heat were much diminished ; but as these were relieved, though not removed, and as the pulse acquired vigour by the operation, I was induced to go on until these unpleasant symptoms were subdued ; this happened by the loss of about ten or twelve ounces more—I tied up the arm quickly, as the pains had now very much increased, and sat by the patient ; and in about twenty minutes she was safely delivered.

CASE XXII.

Mrs. W——, June 10th, 1805, was taken in labour with her tenth child ; her pains began smartly, but seemed ceased almost altogether—she continued in this situation from ten in the evening until six the next morning, at which time I was called ; I found her with nearly all the symptoms related in case xxi. I bled her about twenty ounces, pain immediately came on, and she was quickly delivered.

I had very little prospect of relieving case xxi, in the manner I did, as at that time I was not so well acquainted with this particular kind of case, or of the remedy proper for it—but since this time, many cases of the kind have occurred, and all have been speedily relieved in the manner just related.

CASE XXIII.

1798, Dec. 18th. I was called to Mrs. Z——, in labour with her third child ; she had been in labour eight and forty hours ; waters discharged, thirty six ; the uterus well dilated ; pains severe, but no advancement of the labour—during the pain the child's head, which was well situated, would be forced down, but as soon as it ceased it would again be retracted ; this had been the case for many hours before I saw her—In order to ascertain the cause of this delay, I introduced my hand into the uterus, and presently found the cause of the child's not advancing ; a circle, as it were, of the uterus, had closed between the shoulders of the child and the head, which prevented their passing the stricture—I bled her to fainting ; pains soon came on, and she was quickly delivered.

Cases of this kind have frequently occurred to me ; but in some cases I have been obliged to turn, after the bleeding, (which before was impossible) and in one or two others I have been obliged to use the forceps. These cases resemble each other so much in almost every respect, that I do not think it necessary to detail but one.

Having given an account of a variety of cases in which blood-letting has been useful, and some others,

where the labour could not, without the most serious evils resulting, be terminated without it, I shall close my remarks with observing, that we must not consider the use of this remedy confined to the immediate state of the patient, but extended to her future health and happiness. I look upon it as a preventive to fever, schirrous, abscess, and congestions of various kinds, to which the viscera are but too much exposed, from badly treated labours—Where is the woman who is married, had children, and is in bad health, that does not date her illness from one of her lyings-in?—I can with confidence assert, I have never seen puerperal fever, milk abscess, or the swelled leg, take place, in any one patient who had suffered large or repeated bleedings during their labour; it seems to ward off every blow aimed at the puerperal state.

FINIS.

